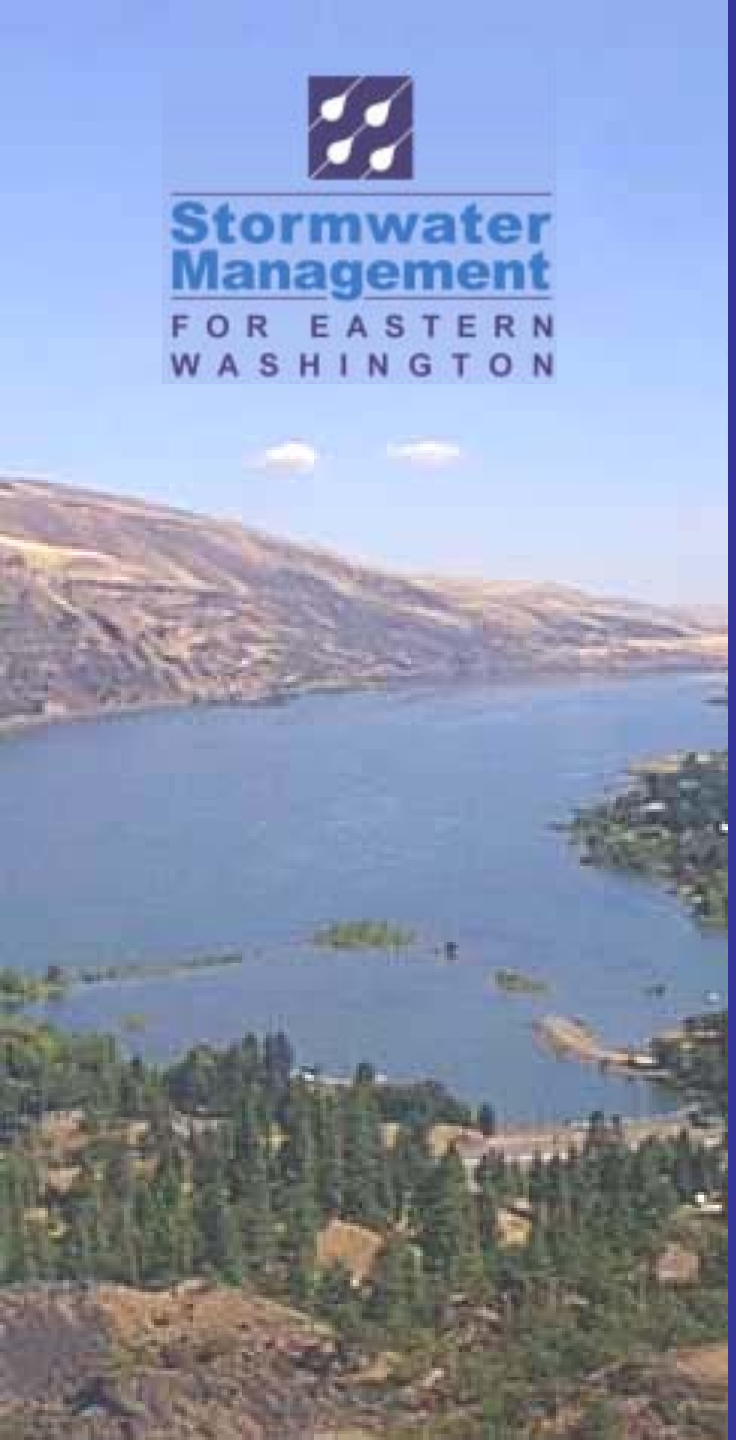



# WELCOME

# Stormwater Management for Eastern Washington


# Project Overview

**Presenter:**

**Lloyd Brewer,**
**City of Spokane**


# Public Workshops

- Spokane
  - Monday, October 14, 2002
- Wenatchee
  - Tuesday, October 15, 2002
- Yakima
  - Wednesday, October 16, 2002
- Tri-Cities
  - Thursday, October 17, 2002


# Purpose of Meeting

- Share information on Eastern Washington Stormwater project
- Hear and understand your issues and concerns
- Answer questions
- Gather comments


# Agenda

- Project structure and process overview
- Draft Model Municipal Stormwater Program
- Draft Stormwater Management Manual
- What's next
- Large group questions & answers
- Information Stations & opportunity for one-on-one questions & answers
- Comment forms


# Project Focus

- Address new NPDES Phase II Regulations
- Develop program specifically for Eastern Washington
  - Model Municipal Stormwater Program
  - Stormwater Management Manual


# Project Background

- In 1999:
  - Eastern WA requested separate program
  - Ten Cities initiated effort
- June 2001 through Sept 2002:
  - Chartering meeting
  - Consultant team hired
  - Stakeholder Workshop
  - Monthly committee meetings
  - Draft documents developed


# Looking Ahead

- Oct / Nov 2002 – Gather public comments
- Winter 2002 / 2003 – Final Draft Manual available for review and comment
- Spring 2003 – Documents finalized


# Project Structure

- **Steering Committee:**
  - **Ross Dunfee, Benton Co. (chair)**
- **Subcommittees:**
  - **Model Municipal Stormwater Program**
    - **John Knutson, Yakima Co. (chair)**
  - **Stormwater Management Manual**
    - **Steve Worley, Spokane Co. (chair)**


# Project Participants

- **Cities of:**
  - Chelan
  - Colville
  - Ellensburg
  - Kennewick
  - Pasco
  - Pullman
  - Richland
  - Spokane
  - Wenatchee
  - Yakima
- **Counties of:**
  - Benton
  - Chelan
  - Grant
  - Spokane
  - Yakima


# Project Participants (cont'd)

- Other Stakeholder Groups:
  - Assoc. of Washington Cities
  - County Road Administration Board
  - Tri-Cities Home Builders Assoc.
  - Spokane Home Builders Association
  - Yakima CWHBA
- Washington State Agencies:
  - Department of Ecology
  - Department of Transportation
- Engineering Companies:
  - HDR Engineering
  - JUB Engineers
  - RH2 Engineering


# Project Participants (cont'd)

- **Consultant Team:**
  - Tetra Tech (lead)
  - David Evans and Associates
  - GeoEngineers
  - Hubbard Gray Consulting
  - MGS Engineering


# Regulatory Context

**Presenter:**

**Karen Dinicola,**
**Department of Ecology**


# Is Stormwater Really a Problem in Eastern WA?

- Leading cause of water quality impairment in urban streams
- Pollutants pose the fastest growing water quality problem
- Runoff quantity: too much, too fast


# Pollutants in Stormwater

- Sediments
- Toxic metals
- Hydrocarbons
- Organics
- Fecal coliform
- Nutrients


# Existing Regulations

- Clean Water Act (NPDES)
- Safe Drinking Water Act (UIC)
- Hydraulic Project Approvals
- Endangered Species Act
- Other State and Federal regulations


# NPDES Phase II Municipal Stormwater Regulations

- Effective in March 2003
- Permit coverage required for:
  - Census-defined urban areas with discharges to surface waters
- Permit will require proper management of stormwater
- Note: there are other stormwater permits and regulatory activities


# Benefit of the Model Program and Manual

Environmental need and science

Federal and State regulations

Presumptive approach to protecting water quality


# Draft Model Municipal Stormwater Program

**Presenter:**

**Lars Hendron,**
**City of Spokane**


# Draft Model Municipal Stormwater Program

***Stakeholders working together to develop regionally appropriate stormwater management tools***


# Intent of Model Program

- Help all communities manage stormwater
- Help regulated communities comply with new permit requirements
- Form basis for Ecology's NPDES Phase II general permit
  - Notices to Ecology by March 10, 2003


# Cities Required to Apply for Phase II Permit

- Asotin
- Clarkston
- East Wenatchee
- Liberty Lake
- Kennewick
- Millwood
- Pasco
- Richland
- Selah
- Spokane
- Spokane Valley
- Union Gap
- Wenatchee
- West Richland
- Yakima

***Note:*** *requirements only apply to storm drain discharges to surface water.*


# Counties Required to Apply for Phase II Permit

## The Urbanized Area of the following counties:

- Asotin County
- Benton County
- Chelan County
- Douglas County
- Franklin County
- Spokane County
- Walla Walla County
- Yakima County

***Note:*** *requirements only apply to storm drain discharges to surface water.*


# Cities Potentially Regulated Under Phase II

- Cities with > 10,000 population but not in an urbanized area must be evaluated:
  - Ellensburg
  - Moses Lake
  - Pullman
  - Sunnyside
  - Walla Walla


# Model Program Contents

**Outline:**

- Chapter 1 – Introduction
- Chapter 2 – Public Education & Outreach
- Chapter 3 – Public Participation & Involvement
- Chapter 4 – Illicit Discharge Detection & Elimination
- Chapter 5 – Construction Site Runoff Control
- Chapter 6 – Post Development Runoff Control
- Chapter 7 – Pollution Prevention / Good Housekeeping
- Chapter 8 – Reporting & Assessment
- Chapter 9 – Summary of Program & Costs


# Model Program Highlights


Stormwater Management

Model Municipal
Stormwater Program
for Eastern Washington

DRAFT

ECOLOGY

September 1992
Publication Number 92-10-043

Printed on Recycled Paper

Stormwater Management
FOR EASTERN WASHINGTON

# Public Education & Outreach

- Educate public on how they can prevent stormwater pollution


# Public Education & Outreach – BMPs

- Develop education and outreach strategy within 3 years
- Describe activities to educate the public, such as:
  - General stormwater brochures
  - Storm drain stenciling
  - Water quality education school programs
  - Stormwater public service announcements
  - Stormwater website

Stormwater Management
FOR EASTERN WASHINGTON

# Public Participation & Involvement

- Provide public comment opportunities during development of stormwater program


# Public Participation & Involvement – BMPs

- Solicit feedback during first year:
  - Hold two public meetings
  - Publish two public notices
- Optional practices:
  - Distribute news releases
  - Organize advisory panel

Stormwater Management
FOR EASTERN WASHINGTON

# Illicit Discharge Detection & Elimination

- Identify and eliminate non-stormwater discharges to storm drain system


# Illicit Discharge – BMPs

- Develop map showing outfalls
- Develop ordinance prohibiting illicit discharges
- Develop illicit discharge detection plan
- Visually inspect outfalls
- Develop spill response plan
- Develop enforcement plan
- Train municipal staff

Stormwater Management
FOR EASTERN WASHINGTON

# Construction Site Runoff Control

- Prevent erosion and dirty water from leaving construction sites and entering surface waters


# Construction Site Runoff Control – BMPs

- Develop erosion control ordinance within 2 years
- Train plan reviewers and inspectors
- Review site plans before construction
- Solicit input from public
- Inspect construction sites
- Provide information on training opportunities to contractors

Stormwater Management
FOR EASTERN WASHINGTON

# Post-Development Runoff Control

- Prevent flooding and water quality impacts from new development


# Post-Development Runoff Control – BMPs

- Develop post-development control ordinance
- Develop post-development runoff plan
- Train plan reviewers and inspectors
- Review site plans for post-development controls
- Inspect post-development controls

Stormwater Management
FOR EASTERN WASHINGTON

# Pollution Prevention / Good Housekeeping

- Prevent water quality impacts from municipal maintenance operations and facilities


# Pollution Prevention / Good Housekeeping – BMPs

- Develop O&M plan that considers:
  - Park and open space maintenance
  - Vehicle and equipment washing
  - Dust control
  - Catch basin / storm drain cleaning
  - Open channels and structural controls
  - Road and parking lot maintenance
  - Flood management
  - Employee training


# Reporting & Assessment

- Periodically evaluate program
- Keep accurate records
- Submit Annual Report
  - Example form provided


# Model Program Cost Assumptions

- Developed for two hypothetical cities
  - 10,000 and 50,000 population
- No funding, staff or existing programs in place
- Include staff time, equipment, and miscellaneous costs
- Do not include capital costs


# Model Program Cost Estimates

- For communities with no stormwater program elements:
  - Total 5-year costs
    $800,000 – $1.7 million
  - Annual Average cost
    $160,000 – $340,000
  - Annual on-going costs after 5 years
    $245,000 – $570,000


# Draft Stormwater Management Manual

**Presenter:**

**Steve Worley,**
**Spokane County**


# Why Have a Manual?

- Environmental need
- Regulatory need
- Regionally specific
- Commonly accepted approach
- Equivalent manuals


# Technical Manual

**THE MANUAL IS NOT A REGULATION**


# When and How is the Manual used?

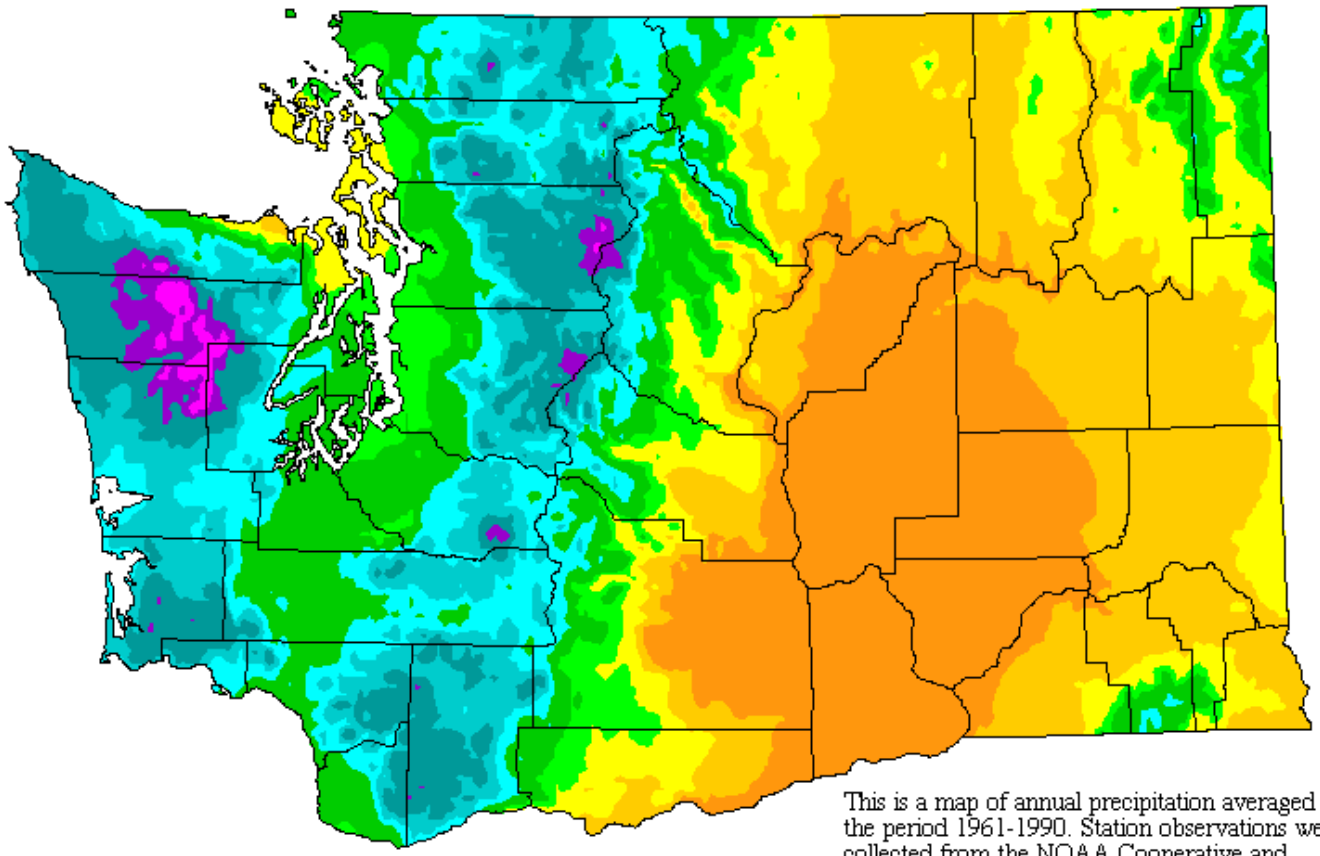
- **Guidance for local governments**
- **Guides technical aspects of regulatory requirements:**
  - ***Water quality***
  - ***Clean Water Act (NPDES)***
  - ***Safe Drinking Water Act (UIC)***
  - ***Hydraulic Project Approvals (HPA)***
  - ***Endangered Species Act (ESA)***
  - ***Other Federal and State regulations***


# Manual Highlights

- Eastern Washington climate (arid & semi-arid regions)
- Incorporate regionally appropriate “Best Management Practices” (BMPs)

# Average Annual Precipitation

## Washington



This is a map of annual precipitation averaged over the period 1961-1990. Station observations were collected from the NOAA Cooperative and USDA-NRCS SnoTel networks, plus other state and local networks. The PRISM modeling system was used to create the gridded estimates from which this map was made. The size of each grid pixel is approximately 4x4 km. Support was provided by the NRCS Water and Climate Center.

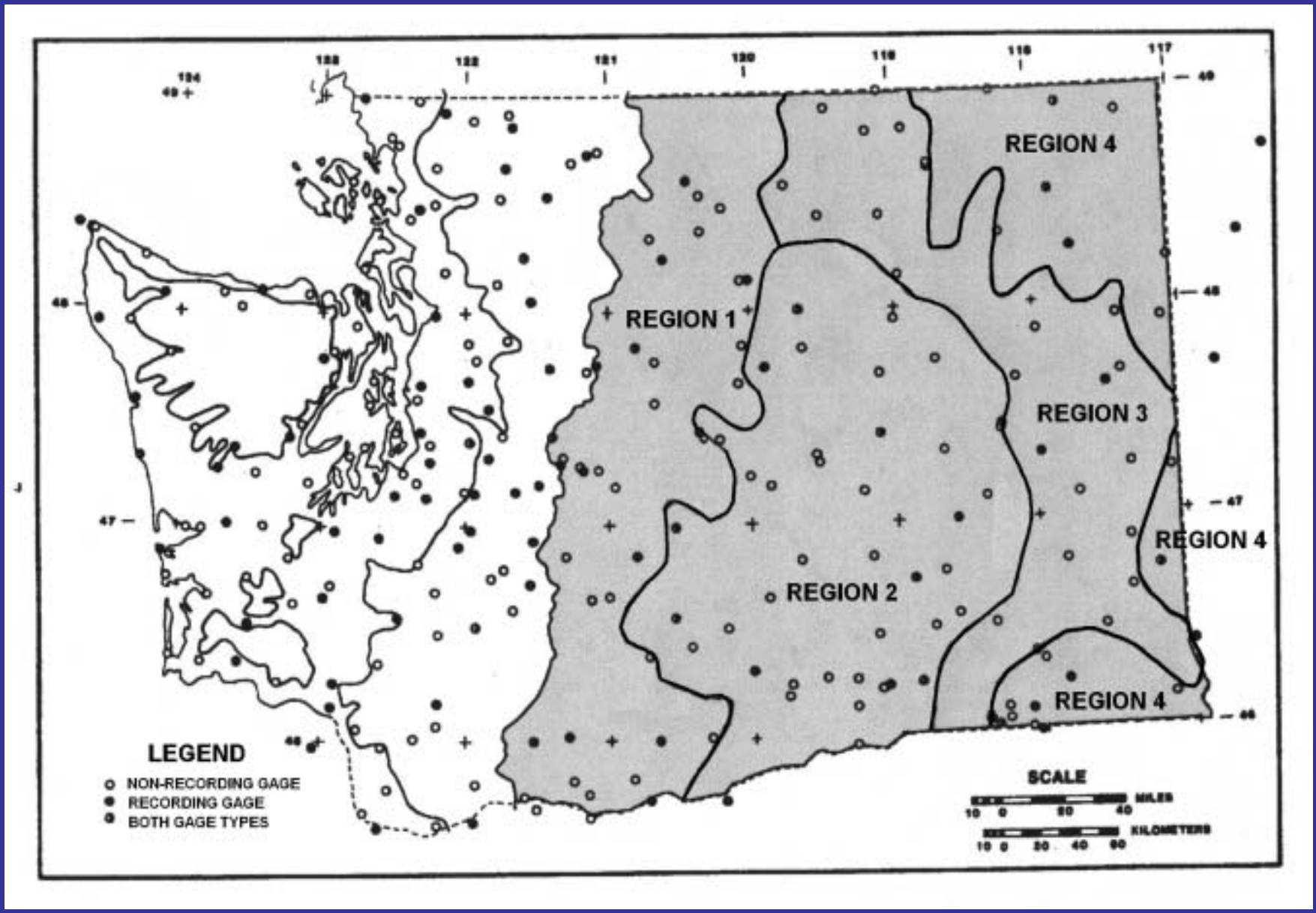
Legend (in inches)

| | |
|---|---|
| Under 10 | 60 to 80 |
| 10 to 20 | 80 to 100 |
| 20 to 30 | 100 to 140 |
| 30 to 40 | 140 to 180 |
| 40 to 60 | Above 180 |

For information on the PRISM modeling system, visit the SCAS web site at http://www.ocs.orst.edu/prism

The latest PRISM digital data sets created by the SCAS can be obtained from the Climate Source at http://www.climatesource.com

# Eastern WA Climate Zones




# Manual Outline

- Chapter 1 – Introduction
- Chapter 2 – Core Elements for New Development & Redevelopment
- Chapter 3 – Stormwater Site Plans
- Chapter 4 – Hydrologic Analysis & Design
- Chapter 5 – Detention, Retention, & Infiltration Design
- Chapter 6 – Water Quality Facility Design
- Chapter 7 – Construction Stormwater Pollution Prevention
- Chapter 8 – Source Control


# New Development

- The conversion of undeveloped or pervious surfaces to impervious surfaces and managed landscape areas

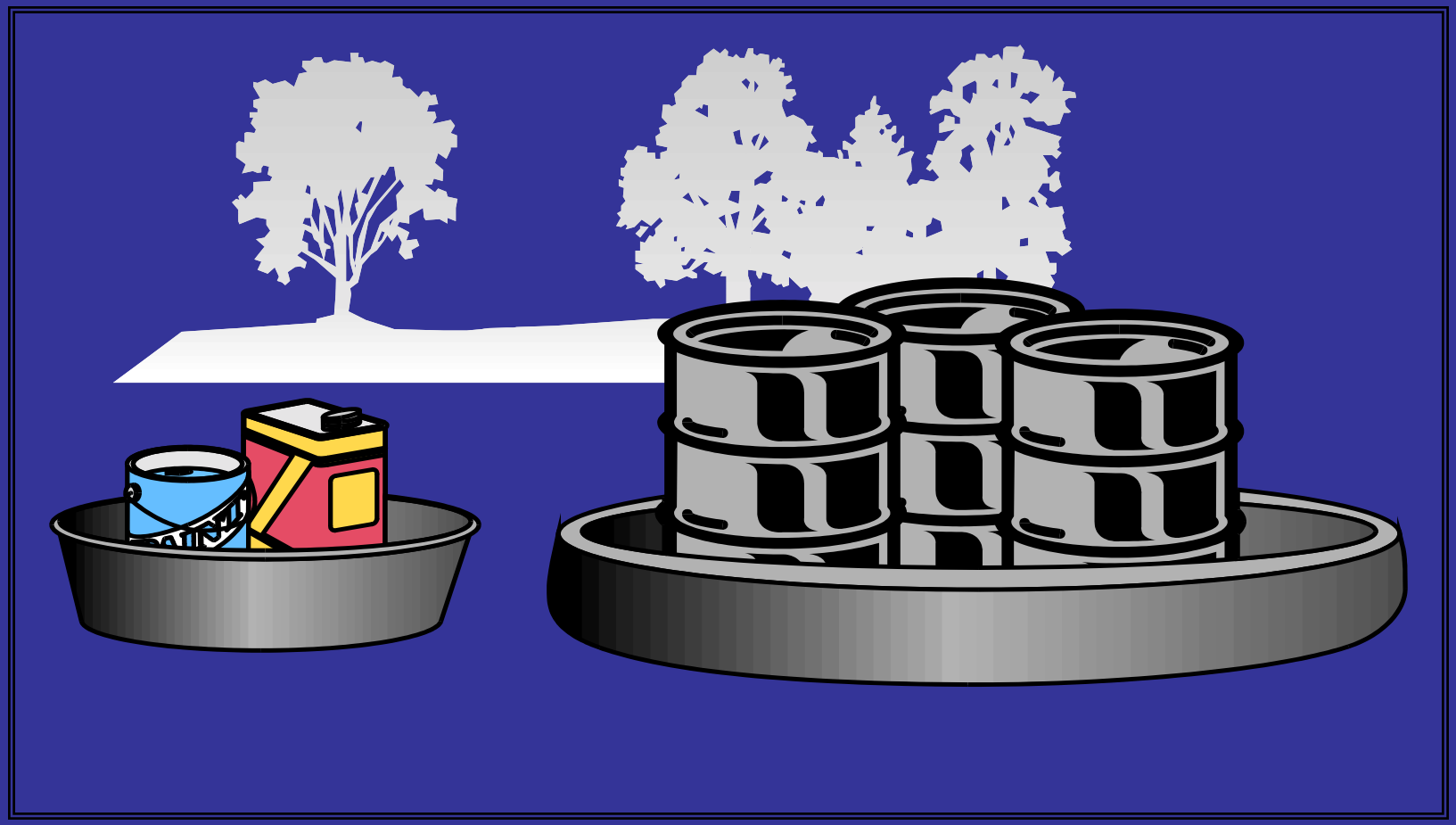

# Redevelopment

- The replacement of impervious surfaces on a developed site
- Exceptions for maintenance

# CE #1 – Preparation of a Stormwater Site Plan

# CE #2 – Construction Stormwater Pollution Prevention

# CE #3 – Source Control of Pollution



# CE #4 – Preservation of Natural Drainage Systems

# CE #5 – Runoff Treatment

# CE #6 – Flow Control

# CE #7 – Operation and Maintenance

# CE #8 – Local Requirements


# Several Areas of Technical Feedback Requested

- **See highlighted items throughout draft Manual:**

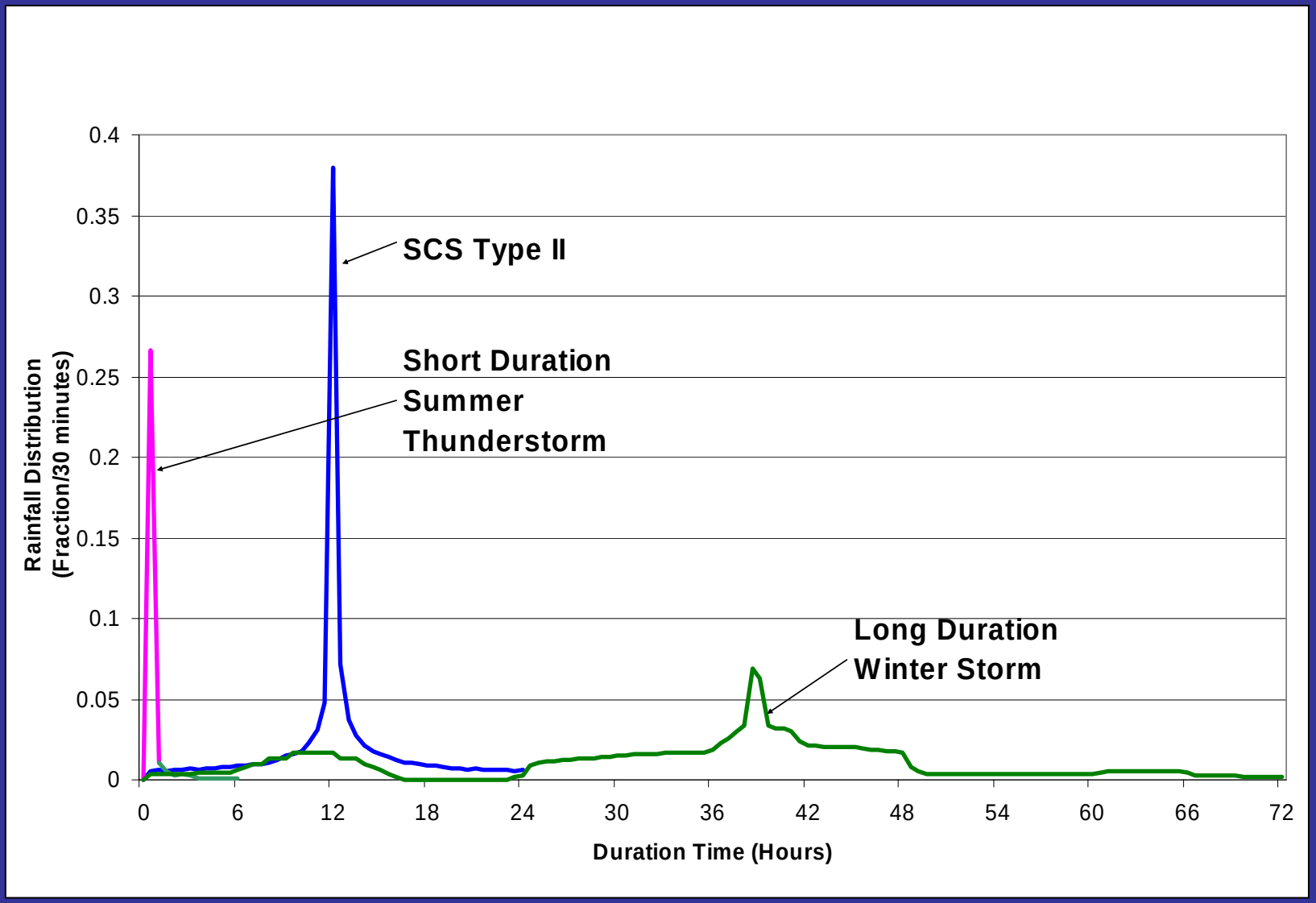
  ***"Information for Reviewers"***

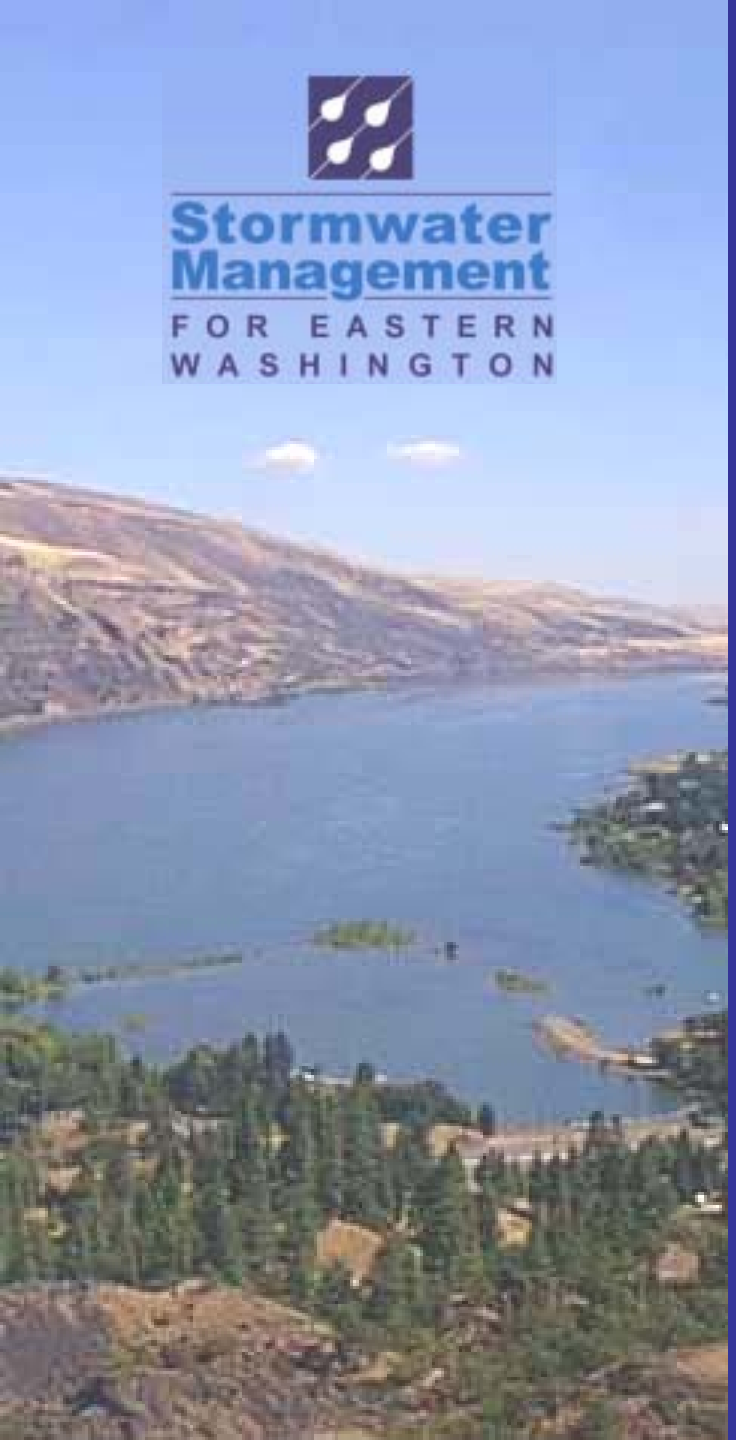
  ***"Feedback Requested"***


# Hydrologic Analysis for Eastern WA

- **Design storm considerations:**
  - **water quality**
  - **flow control**
  - **snowmelt factor**

# Comparison of Regional Storms with SCS Type II Distribution






# The Model Program and the Manual work together!


# What's Next?

**Presenter:**

**Sarah Hubbard-Gray**
**Hubbard Gray Consulting**


# Your Comments Are Important!

- Considered as documents revised
- Provide comments today
  - Comment forms
  - Relay to staff
- Review draft documents in detail
  - Free CDs at workshops
  - Internet, Dept. of Printing, Libraries
- Mail / e-mail comments by Nov. 30, 2002
  - Address on comment form
  - Described in project newsletter


# Important Future Dates

- **Final Draft Stormwater Manual available for review – *Winter 2002 / 2003***
- **Final Stormwater Manual and Model Program available – *May 2003***
- **NPDES Phase II jurisdictions submit notice to Ecology – *March 10, 2003***


# Information Stations

- **Stormwater Management Manual**
  - Organization and Core Elements
  - Hydrology and design storms
  - Best management practices
- **Model Municipal Stormwater Program**
  - Overview and 6 minimum measures
  - Program elements and required BMPs
  - Model program cost estimates


# Information Stations (cont'd)

- **Other Stormwater Information**
  - New municipal stormwater permits
    - Federal and State Requirements
    - Phase II Permits
  - Reissuing general stormwater permits
    - Industrial activities
    - Construction activities
  - Proposed rule revision
    - Stormwater discharges to UIC wells

***Ask questions and provide comments!***


# Large Group Question and Answer Session


# Move to the Information Stations